

## SYSTEM OF WASHING MACHINE AND CONTROL METHOD THEREOF

### [Technical Field]

The present invention relates to a washing system and a method for controlling the same, and more particularly, to a washing system and a method for controlling the same, in which communication between a laundry device and a home server of a home network is used for performing washing, automatically.

### [Background Art]

In general, in laundry devices, there are washing machines, dryers, and washing and drying machines.

Recently, owing to development of information technology, a RFID (Radio Frequency Identification) Tag is attached to a portion of clothes for making management of logistics or management of information possible.

The RFID tag has a predetermined memory region for enabling memory of various kinds of information on the clothes. The memory region has various kinds of information recorded thereon, or a kind of memory chip for enabling recording of additional information.

Particularly, Japanese Laid Open Patent No. 2002-360968 discloses a laundry device in which a noncontact identification device is used, provided with a reader for receiving a signal from the RFID tag to be attached to clothes and having information recorded thereon, a central information processing unit having a holder for informing information the reader reads, and a control unit for setting or changing a washing mode.

The Japanese Laid Open Patent No. 2002-360968 intends to obtain information on washing from the RFID tag attached to the clothes at the time of washing, for preventing an improper washing from being set.

However, above related art has a problem in that the RFID tag is required to store information as much as possible.

That is, a memory size of the RFID tag is required to be greater in proportion to a quantity of information, to cause a production cost increase, which leads the patent not  
5 practicable.

Moreover, above related art uses the information the reader read only for the laundry device itself.

However, a CPU used in a general washing machine has a poor performance due to a production cost, processing of information has not been smooth, and there are frequent  
10 errors occurred.

#### **[Disclosure]**

#### **[Technical Problem]**

The object of the present invention is to provide a new washing system and a method for controlling the same, which can be controlled through a home network with  
15 reference to information on various kinds of laundry introduced in a laundry device sensed automatically.

#### **[Technical Solution]**

The object of the present invention can be achieved by providing a washing system including an information tag fastened to laundry, having information on the laundry  
20 stored therein, a laundry device for progressing various washing related operation, the laundry device having a control unit for controlling the washing related operation, a reader for receiving a signal from the information tag on the laundry, to obtain information stored in the information tag, and a home server connected to the control unit of the laundry device so as to supply various control signals, for receiving information obtained by the  
25 reader to perform remote control of the laundry device.

In another aspect of the present invention for achieving the object of the present invention, a method for controlling a washing system includes an information obtaining step for obtaining information on washing of laundry, a control setting step for transmitting the obtained information to a home server to produce a control algorithm, an information  
5 receiving step for receiving the produced control algorithm, and a washing progressing step for washing the laundry according to the received control algorithm.

**[Advantageous Effects]**

The washing system and method for controlling the same permits to set various cycles of washing automatically through identification of kinds of laundry by using a  
10 noncontact system.

The washing system and method for controlling the same minimizes information to be stored in an information tag of laundry, to reduce a production cost of the information tag.

Because the home server sets various control algorithms, a comparatively low cost  
15 processing unit, for an example, a CPU can be used in the laundry device.

**[Description of Drawings]**

FIG. 1 illustrates a block diagram of a washing system in accordance with a preferred embodiment of the present invention, schematically;

FIG. 2 illustrates a block diagram of a washing system in accordance with another  
20 preferred embodiment of the present invention, schematically;

FIG. 3 illustrates a flow chart showing the steps of a process for controlling a washing system in accordance with a preferred embodiment of the present invention, schematically; and

FIG. 4 illustrates a flow chart showing an example of the steps of a process for  
25 generating a control algorithm in a control process in accordance with a preferred

embodiment of the present invention, briefly.

**[Best Mode]**

Preferred embodiments of the present invention will be described in detail with reference to the attached drawings.

5           FIG. 1 illustrates a block diagram of a washing system in accordance with a preferred embodiment of the present invention, schematically.

That is, the washing system in accordance with a preferred embodiment of the present invention includes an information tag 110, a laundry device 120, a reader 130, and a home server 140.

10           The information tag 110 is fastened to various kinds of laundry (for an example, clothes, or beddings) for storing information on the laundry.

The information on the laundry stored in the information tag 110 is on a kind of the laundry.

Of course, the information tag 110 may further include at least one kind of  
15 information on washing of the laundry, i.e., preferable operation time periods for respective cycles, preferable operation temperatures for respective cycles, or preferable water levels for respective cycles.

However, in order to store all the various kinds of information, a memory capacity of the information tag 110 can not but become bigger, when a cost of the information tag  
20 110 can not but increase.

Accordingly, it is the most preferable that only minimum essential information, i.e., information on kinds of the laundry is stored in the information tag 110, and the preferred embodiment of the present invention also suggests storing only information on kinds of laundry in the information tag 110.

25           Of course, it is preferable that the home server 140 stores information on washing

of each kind of laundry.

In the laundry device 120, there are washing machines, dryers, or washing and drying machines, which perform operations related to washing, such as washing and/or drying of various kinds of laundry.

5 Particularly, the laundry device 120 includes a control unit 121 for controlling various washing related operation. In general, it is preferable that the control unit 121 is a controller for performing operation control of the laundry device 120.

The reader 130 receives signal from the information tag 110, to obtain information stored in the information tag 110.

10 It is preferable that the information tag 110 is a RFID (Radio Frequency Identification) Tag on which various kinds of information can be written and stored, and the reader 130 is a RF reader for exchanging signals with the RFID tag, to receive information from the RFID tag or write new information on the RFID tag.

15 Of course, not only a bar code is used for the information tag 110, to use a bar code reader for the reader 130, but also a variety of other structures may be used which can exchange information by noncontact method.

20 Particularly, the preferred embodiment of the present invention suggests the reader 130 fabricated as a unit with the laundry device 120, wherein the reader 130 is connected to the control unit 121 of the laundry device 120 such that transmission/reception of various kinds of information between the reader 130 and the control unit 121 is possible.

Of course, referring to FIG. 2, the reader 130 may be fabricated separate from the laundry device 120, when it is preferable that the reader 130 is connected to a home server 140 which will be described later for enabling transmission/reception of information.

25 The home server 140 connects various home appliances to a communication network, to form a home network, so that the home appliances are controlled remotely as

required. Though the home server 140 may be provided to one of the home appliances (for an example, a TV set, a refrigerator, or so on) in the house, the preferred embodiment of the present invention suggests the home server 140 to be a separate computer.

Particularly, it is preferable that the home server 140 is connected to the control  
5 unit 121 of the laundry device 120 to enable communication therewith. Along with this, it is preferable that the home server 140 is constructed so as to be provided with information obtained by the reader 130, to make remote control of the laundry device 120.

Moreover, the home server 140 has a data base 141 with information on washing for various kinds of laundry. The home server 140 is programmed such that, in a case the  
10 kind of laundry is identified through signal exchange between the reader 130 and the information tags 110, the home server 140 produces a control algorithm for retrieving various kinds of information on washing the kind of laundry identified thus, and progresses an operation related to washing of the laundry.

In this instance, it is preferable that the information on washing includes at least  
15 one kind of information of, preferable operation time periods for respective cycles, preferable operation temperatures for respective cycles, or preferable water levels for respective cycles.

Of course, it is possible that the information tag 110 may have an identification code proper to the laundry stored therein, and the data base 141 of the home server 140  
20 may have information on washing the various kinds of laundry for each of the proper identification codes stored therein.

In this instance, the proper identification code may be stored in the information tag 110 of laundry through the reader 130 by the user 140 operating the home server 140. This is possible because the information tag 110 is a RFID tag on which information can also be  
25 written, and the reader 130 is a RF reader.



A method for controlling the foregoing washing system will be described with reference to the attached flow charts in FIGS. 3 and 4.

When the user introduces laundry into the laundry device, the reader 130 at the laundry device 120 performs information exchange with the information tags 110 of the laundry being introduced, and obtains information on the laundry stored in the information tags 110 (S110).

In this instance, the information on the laundry is information on kind and amount of the laundry.

When the reader 130 finishes obtaining information on laundry, the control unit 121 receives the information on laundry from the reader 130, and transmits to the home server 140 (S120).

If the reader 130 is separate from the laundry device 120 (for an example, if the reader 130 is provided to a laundry basket or the like), it is preferable that the reader 130 transmits the information on the laundry obtained thus to the home server 140, directly.

Then, the home server 140, having the information on the laundry received from the control unit 121 by above series of steps, produces a control algorithm for progressing washing related operation with reference to the information received thus (S130).

There may be many kinds of methods for producing the control algorithm.

For an example, referring to the flow chart in FIG. 4, the home server 140 retrieves information on washing a kind of laundry from the various kinds of information stored in the data base 141 in advance with reference to the kind of laundry received from the reader 130 (S131).

Then, the home server 140 produces a control algorithm for progressing operation related to washing through setting preferable operation time periods for respective cycles, preferable operation temperatures for respective cycles, or preferable water levels for

respective cycles, or so on with reference to the information retrieved, and information on an amount of the laundry (S132).

Though not shown, the production of the control algorithm may be made by retrieving a control algorithm of a kind of laundry from various kinds of control algorithms registered on the data base 141 once identification of kind of laundry is made as above in a state control algorithms for respective kinds of laundry are also registered on the data base 141 of the home server 140 in advance.

Then, the home server 140 transmits the control algorithm produced by above series of steps to the control unit 121 of the laundry device (S140).

According to this, though not shown, the control unit 121 progresses washing related operation while performing operation control of, such as a driving motor, various valves and heaters, and fans required for driving a drum according to the control algorithm received from the home server 140 (S150).

Eventually, as laundry is identified and a control algorithm thereof is set automatically by a series of steps in the preferred embodiment of the present invention by the home server, automatic setting of a control algorithm can be made, smoothly.

#### **[Industrial Applicability]**

Since the washing system and method for controlling the same minimizes information to be stored in an information tag of laundry, to reduce a production cost of the information tag, the washing system and method for controlling the same is applicable to a relevant industry, favorably.

Since the home server sets various control algorithms, permitting to use comparatively low cost processing unit, for an example, a CPU at the laundry device, the washing system and method for controlling the same is applicable to a relevant industry, favorably.